Run II Experiments Databases and DØ Trigger Database Taskforce

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Database Applications at CDF and DØ

While most of the database applications for CDF and DØ are now quite mature and not under active development there remains some work to do reach a situation where all applications are providing the functionality required for the upgraded detectors and are in a fully maintainable state for the remainder of Run II.

The Computing Division proposes to embark on a program of work to assist the experiments to move all applications into a finished and fully maintainable state.

We have identified a team/project leader as an addition to the Running Experiments department to begin organizing and carrying out this program of work, in conjunction with experiment personnel who are responsible for various database applications. Igor Mandrichenko from CD will assume this responsibility of CD Database Applications Coordinator for CDF and D0 in mid November.

The Trigger Database application at DØ is one that is not yet in its final finished form. Deployment of the Frontier application at CDF is another area where work is still underway.

Trigger Database Taskforce

Since the Trigger Database application must be in a complete and usable form in order to commission and test the upgraded DØ "Run IIb" detector it is very important to ensure that an appropriate program of work and manpower be identified. This is particularly important because the developer of this application will not be taking on long term maintenance of the product for the remainder of Run II.

We are therefore forming a task force with the following charge and objectives:

1. Clarify DØ's requirements for creating, storing, editing, viewing, and producing trigger lists for the detector and for simulation work.
    a. The functionality for a "Trigger Database Application" includes many essential and some desirable features. At this late stage in Run II it is imperative that all

essential features of the application be identified and implemented and all desirable features be understood and prioritized.
   b. While requirements cannot continue to evolve indefinitely, some reasonable expansion of options for the RunIIb trigger list, such as those already under discussion for "or-ing" or "splitting" at L2, must be envisaged and should be folded into implementation and support considerations.
   c. The taskforce should produce a report on this by the end of November.
2. Consider the full range of potential technical solutions for implementing, at minimum, the required functionality, in a manner that accommodates some limited evolution after Feb 2006.
   a. A great deal of work has gone into both understanding the constantly evolving requirements for this application and in implementing solutions in the form of an application suite consisting of
      - a database to store the data (with constraints and validation)
      - an application with a user interface to manipulate and validate the data
      - a middle tier server through which the application interacts with the database
      - reporting tools to view and extract the data.
   b. While it is extremely unlikely that the functionality currently provided by the current application suite could be reproduced using different technology in the time available, it may be possible to find ways to implement missing and additional desirable functionality using new approaches. This should be examined by the task force in a careful and realistic way.
   c. Should a detailed review of the functionality now required by the experiment indicate that many of the features originally thought to be necessary no longer are then a careful examination needs to be made of which parts of the existing application suite might be either simplified or replaced, given this new understanding.
   d. The goal must be to assure that the application meets the requirements of the experiment, yet remains maintainable for the long term while meeting the deadlines. This will be a challenge.
3. Create and execute a program of work that assures delivery of a tested working product by the end of Feb 2006, while maintaining all the functionality required by a running experiment.
   a. The taskforce needs to clearly identify the manpower required to execute a successful program of work.
   b. The taskforce needs to provide weekly communications (in a meeting and/or minutes) to both the CD and the experiment computing management on the status of the plan and the work and provide written monthly reports.

CD is asking Igor Mandrichenko and the experiment is asking Jim Linnemann to co-lead this task force. Igor and Jim will be responsible for selection of task force strategies and implementation of the associated program of work.

Other members of the task force who will be called on to participate at various stages and to help carry out some of the work are:-

Jim Kowalkowski (CD)
Arnold Pompos (DØ Experiment)
Marc Mengel (CD)
Marguerita Vittone (CD) ?
Dennis Box(CD)?

Consultants to the task force who may be asked for documentation, technical overviews, and explanations are:

Elizabeth Gallas (CD)
Eric Wickland (CD) – limited availability
Marco Verzocchi(DØ Experiment) – limited availability
Nikos Varelas (DØ Experiment) – limited availability

Igor Mandrichenko and his team in the Running Experiments Department of CD will be responsible for the long term support of the product.

CDF Frontier Deployment

It is assumed that deployment of Frontier at CDF will proceed without special taskforce-like intervention. This assumption will be reexamined in the next few months.

Database Applications long term support

Over the next year the Database Applications coordinator will work with both experiments with their experiment application developers to assure that all databases and applications are in a well understood and supportable state for the remainder of Run II. Risks associated with reliance on outdated or unsupportable technology and mitigation strategies for those risks (in the form of replacing the outdated technology) will be examined.